



8378/86334
TEL-P-0022 US
PA 07 0002B
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/075,067
Applicant : Weyl K. Wang et al.
Filed : February 12, 2002
TC/A.U. : 2633
Examiner : Quan Zhen Wang
Docket No. : 8376/86334 (TEL-P-0022)
Customer No. : 24628
Title : Power Pre-Emphasis for
WDM Transmission
Systems

Confirmation No.: 7460

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Paul M. Vargo
Date
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Declaration of Kenneth M. Fisher

I am a Principal Engineer at Tellabs Operations, Inc., a telecommunications equipment provider and the Assignee of this patent application. I have a B.S. and an M.S. in Electrical Engineering.

I have reviewed and am familiar with the above identified application, the pending claims and figures of the application as well as the Examiner's 35 USC § 112 rejection in the outstanding Office action of July 13, 2005. I am also familiar with the enable requirement under the US Patent Statute 35USC.

Relative to the Examiner's rejection pursuant to 35 USC § 112 ¶1, several claims namely claim 1, claim 6, claim 10 and claim 30 have been specifically

identified as the basis of the Examiner's rejection of claims 1-20 and 30 as failing to comply with the enablement requirement. However, the Examiner's rejection seems to be a semantical issue rather than a substantive issue. All of the objections, except one to be discussed further subsequently, relate to the phrase "output parameter", or, "a selected parameter".

It goes without saying that the claims are to be read by those of skill in the art in light of the specification and figures of the application. It is my opinion that the phrase "output parameter values" of claim 1 is clearly supported by the specification and figures of the present application so as to enable one skilled in the art to make and use the invention of claims 1-5. In this regard, as stated in the last full paragraph of page 4 of the present application:

"Optical networks can incorporate a power pre-emphasis process which minimizes the power fluctuation range at the network's receivers across a predetermined range of wavelengths. The output power of a selected channel is set according to the pre-emphasis process. Circuitry which implements the pre-emphasis process can be set, on a per-channel basis, at manufacture and when combined with a plurality of transmitters can be provided as a module installable in a network without needing further adjustment."

Further, on page 5 of the application, second full paragraph, a method is described in accordance with the invention as follows:

- "• establishing a gain profile, across a range of wavelengths, on a per span basis;
- forming an inverse of the gain profile;
- establishing the widest acceptable receiver input power variation and determining a maximum number of allowable cascaded spans;
- raising the inverse of the gain profile to an exponent which corresponds to the maximum allowable number of spans to form a processed inverse profile; and
- setting one of laser output power or optical filter characteristic, on a per-channel basis, in accordance with the processed inverse profile."

As the above makes clear, output parameter which is discussed in the application includes output power, optical filter characteristic or output amplifier gain profile. Further, starting at page 7, second full paragraph, of the application is an extensive discussion of methodology for setting the output power profile of transmitters 24 (shown in Fig. 3 of the present application). Once again, the phrase "output parameter values" clearly finds support in the indicated text on page 7 - page 9 of the present application.

Similar comments apply to the corresponding rejection of claim 30 which refers to "output parameter profile" and "adjusting an output parameter profile" in view of the discussion in the application which describes how to determine the output power for each of a plurality of lasers. In this regard the Examiner's attention is directed to the last two sentences of page 6 of the present application extending through the first five sentences of page 7 which state:

"The output power profile for the plurality of transmitters 24 is established, on a per-channel basis, using pre-emphasis circuits 28. Circuits 28 can be set at manufacture. The combination of circuits 28 and transmitters 24 can be configured as one of a plurality of modules 30 installable in optical networks, such as network 20. As discussed in more detail subsequently, no field adjustments are necessary when adding a transmitter/pre-emphasis module, such as module 30 to a network such as network 20."

It is further my opinion that the rejection of the phrase "a selected parameter" in claim 6 should be withdrawn as at the very least, "a selected parameter" includes laser output power of transmitters 24. As is described, and noted above, second full paragraph of page 5 of the application one of the steps that is referred to in there is:

"setting one of laser output power or optical filter characteristic, on a per-channel basis, in accordance with the processed inverse profile."

Therefore, "a selected parameter" includes "laser output power or optical filter characteristic".

Finally, the Examiner has rejected claims 6-9, alleging that the phrase "channel based radiant energy beams" is not described in the present application. However, the Examiner's attention in this regard is directed at least to lines 3-7 of page 2 of the application wherein the following is stated:

"For example, with respect to Fig. 2, a channel having a wavelength on the order of 1532 nm will be amplified with maximum gain. On the other hand, a channel having a wavelength on the order of 1538 nm will be amplified with minimum gain in each amplifier, assuming that all amplifiers exhibit a similar profile."

Quite clearly "channel based radiant energy beams" can be described as a generalized category of optical energy sources (that include lasers) that generate energy for at least one channel of a multi-channel communication system. Specifically, lasers provide light amplification of stimulated emission or radiation. Further, as stated on the last two lines of page 6:

"The output power profile for the plurality of transmitters 24 is established, on a per-channel basis, using pre-emphasis circuits 28."

In addition, the last two lines of page 7 in referring to an equation at the top of page 8 state:

"The power received after a light path has traversed S spans on wavelength channel i is,"

The last paragraph of page 8 of the present application also discusses channel based radiant energy beams as follows:

"The pre-emphasis circuitry 28 adjusts the input power so the received power range becomes less dependent on g_i . As illustrated in Fig. 5, pre-emphasis should be inversely proportional to g_i i.e., de-emphasizing the strong channels and emphasizing the weak ones. Preferably, the pre-emphasis circuitry 28 will tilt the graph of Fig. 5 to remove the dependence on g_i . We will use the following input power values for pre-emphasis:"

For at least the above reasons, it is my opinion that the above identified application complies with the enablement requirement of the US Patent Statute, 35USC.

That all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of

the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 10 OCT 05

By: Kenneth M. Fisher
Signature